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Acute Coronary Syndromes

COMPARISON OF IN VIVO FIBROUS CAP THICKNESS BETWEEN RUPTURED AND NON-RUPTURED PLAQUES ASSESSED BY OPTICAL COHERENCE TOMOGRAPHY

Poster Contributions
Hall C
Monday, March 31, 2014, 9:45 a.m.-10:30 a.m.

Session Title: Acute Coronary Syndromes: Biologic Considerations
Abstract Category: 1. Acute Coronary Syndromes: Clinical
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Background: Acute coronary syndromes (ACS) often result from rupture of a thin-cap fibroatheroma (TCFA). Thin fibrous cap (FC) has been defined as <65um with few efforts evaluating in-vivo threshold values. We sought to characterize FC thickness in TCFAs by comparing ruptured (R) and non-ruptured plaques (NR) by OCT.

Methods: Thirty-nine lesions from 35 patients (54% ACS, 46% Stable CAD were included. Culprit lesion OCT analysis were performed off-line and divided into those with R (n=11) and those with no NR (n=28). Analysis included reference and culprit site lesion morphology, FC thickness and lumen diameter. Optimal Data Analysis was performed between R and NR to determine FC thickness associated with plaque rupture.

Results: R and NR groups had similar mean age (63±14 v 62±12), incidence of diabetes (64 v 57%) and hypertension (82 v 86%). R patients more commonly presented with acute myocardial infarction (73 v 13% p<0.01) and were less likely to have stable CAD (18 v 58% p<0.01). FC thickness was significantly thinner in R patients (74±14 v 135±59 µm p=0.02) with similar minimal lumen area (1.7±0.9 v 1.9±1.2 mm2). All ruptured plaques had FC thickness <101 µm. Area under the Curve for the Receiver Operating Curve analysis was 0.84 (sens 100%, spec 64%).

Conclusions: R patients more commonly presented with ACS, and culprit lesion of ruptured plaques had thinner FC compared with non-ruptured plaques. We propose that minimal FC thickness >101µm by OCT can be used to define a group at low risk of plaque rupture.